

**BLACK & VEATCH**
SPECIAL PROJECTS CORP.

3/29/96

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FAX COVER SHEETProject No.: 71670Date: 3/29/96To: SHERI BIANCHINCo. Name: USEPAFax No.: 886-4071Telephone No.: 886-4745Senders Name: MATT HASTONARDITelephone No.: 683-7830

This transmittal consists of 7 pages, including this cover sheet. A copy of this transmittal ~~(will)~~, (will not) be sent by mail.

Comments:

Sheri:
The rough review comments for the upper aquifer tech. memo and the trench (PGCS) memo follow. I apologize for the lack of a polished document ~~at~~ now, but I plan to have a better version on Mon. Give me a call or leave me a message, and we can discuss this further.

Transmitted By: _____

Date/Time: _____

US EPA RECORDS CENTER REGION 5



464741

Draft Review Comments**Upper Aquifer Investigation Technical Memorandum, March 15, 1996
American Chemical Services, Inc.****Comment No. 1, page 1, 2nd paragraph**

The boundaries of bulleted areas A,B,C, and D described in this paragraph are not clear. Present the boundaries of these areas on figure 1.

Comment No. 2, page 2, 3rd paragraph

The boundaries of bulleted areas A,B,C, and D described in this paragraph are not clear. Present the boundaries of these areas on figure 1.

Comment No. 3, page 2, 4th paragraph

Provide the rationale for selecting the locations of the 8 "deep" groundwater samples described in this paragraph.

Comment No. 4, page 3, top of page

On figures, provide the locations of the UST and industrial facilities discussed in item 2 at the top of the page.

Comment No. 5, page 5, last paragraph; page 6, 1st paragraph

Delete these paragraphs. It is inappropriate to attribute acetone concentrations of 50 ug/l or less to natural processes or lab contamination. There is no evidence to suggest that natural processes have contributed to acetone concentrations detected. At the 45 sampling locations where acetone was detected, 28 locations had acetone concentrations well above 50 ug/l.

Comment No. 6, page 8, paragraphs 2, 3, and 4 (Conclusions)

Remove references to the UST and pipeline as potential sources of BETX contamination. There is not sufficient data to support that the UST and pipeline are contributing to BETX contamination.

General Comment No. 3

With the included modifications, the general locations of the monitoring wells are acceptable. However, final locations will be verified by USEPA and IDEM in the field.

Trench Technical Brief Comments

1. Page 1, 4th paragraph - Modpath will show the path that a particle will flow from areas of elevated hydraulic head to areas of low head. How does this information predict the zone of capture for the contaminant plume?
2. Page 1, last paragraph - The input parameters used to establish the basis for the groundwater model is unknown. Has a calibrated, justified model been established for the ACS site? Does the information input into the model accurately represent site conditions? Without this information established up front, any review of the trench model is baseless.

BVSPC can assume the model accurately represents ACS site conditions. However, if a detailed, documented model has not been previously established, then BVSPC recommends that the model be reviewed quickly before any variations of the model be run.

3. Page 2, 3rd paragraph - What would the effects would be produced by a 4-foot drawdown?
4. Page 2, 4th paragraph - Why are the modeled contours different than the October 1995 contours? It appears to be a stretch to say that the comparison between the Modpath flowlines and the actual contaminant plume show the same general extent between the modeled and the actual extent of contamination. The problem, as stated on page 3, is that the flowlines do not represent the predicted (modeled) extent of contamination. Will a contaminant transport model be run?
5. Page 3, last paragraph - What were the additional trench configurations that were evaluated? How does the comparison between the modeled particle tracks and the actual extent of contamination indicate the trench configuration is sufficient?

Date: 3/28/96

TO: Steve Mrkvicka

FROM: Girma Mergia

RE: ACS Site Trench Evaluation memo (3/20/96) review comments

I have reviewed the input/output of the trench simulations ACS-A, ACS-B, and ACS-C. The procedures used to evaluate the trench performances seem reasonable.

However, the validity of the results will depend on the MODFLOW model used for the site. We have no model documentation to evaluate the model appropriateness and validity.

I have discussed with Peter Vagt, the groundwater modeller with Montgomery Watson, on 3/27/96. Mr. Vagt indicated that a MODFLOW model documentation was put together 6 months ago for submittal to the EPA as an appendix. It was not however, submitted and is available for review. The previous model was done by head matching to simulate the groundwater flow pattern at the site and was verified with a pump test data that was completed about a year ago.

According to Mr. Vagt, for the trench simulation, hydraulic parameters used to are the same as hydraulic parameters used for the site model. The south side boundary has been moved north by about 2500 feet. Constant head boundaries estimated from the site water level contours (Figure 1) are used for the trench simulation model.

From my discussions with Mr. Vagt, the trench simulation is completed for a rough estimate and demonstration of the flow patterns on the north side of the plume. We agree that a one foot difference in head between the trench and the aquifer which is used for simulation may not result in a reliable capture zone as shown on Figure 5. However, the memorandum from Montgomery Watson says that the trench head will be maintained at 4 feet below the groundwater during the actual remediation. The model results given, are gross estimates. One concern we have from this model result would be the particles on the east side of Firepond migrating back to the trench which is shown on Figures 3, 4, and 5. For this condition to occur the constant head used on the boundary east of Firepond seems critical and should be justified. Also Mr. Vagt has said to me that there are no pumping wells in the vicinity of the trench area to influence the site groundwater flow.

Discussing the conductivities of the trench used in the model, Mr. Vagt says that the changes from 50 ft² per day to 100 ft² per day was to account for broader cells. However he agrees that changing the conductances back to 50 ft² per day is a mistake and should have been 100 ft² per day for the last drain cells listed on his 3/26 submittal.

In general, the model used to demonstrate the trench influence is a rough model that simulates a smaller area of a previous model. The constant head boundaries used are closer to the trench influenced area and may potentially influence simulation results. The 200 inch per year average recharge rate used at Firepond is an estimate from previous modeling from surface water flow and storm water discharges. We think that the recharge rate to Firepond can vary significantly with time and justification of the average recharge rate is very important.

The model according to Mr. Vagt uses an averaged hydraulic conductivity of 12 ft/day for the entire aquifer which he thinks is on the high side and conservative design. He says the slug test data indicated hydraulic conductivity increase from west to east. We want to point out that higher hydraulic conductivity used to model the the west side can also potentially decrease the resistance of flow towards the trench from the east side and result in unrealistic flow paths towards the trench from farther zones.